# Deber 8
## Estatica

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1) $\overline{BC} = \langle -6, 3{,}5, -4 \rangle$

$|\overline{BC}| = 8{,}01\,m$

$F_{BC} = \langle -6, 3{,}5, -4 \rangle \frac{4}{8{,}01}$

$F_{BC} = \langle -2{,}99, 1{,}74, -1{,}99 \rangle$

$M = r_{BA} \times F_{BC}$

$M = -6i \times \langle -2{,}99, 1{,}74, -1{,}99 \rangle$

$$M = \begin{pmatrix} i & j & k \\ -6 & 0 & 0 \\ -2{,}99 & 1{,}74 & -1{,}99 \end{pmatrix} \Rightarrow \boxed{11{,}94j - 10{,}44k}$$

2) $M = r \times T$

$\overline{AB} = \langle 0{,}6, 3{,}3, -3 \rangle$

$\frac{}{4{,}5}\ 1200 \Rightarrow \langle 160, 880, -800 \rangle$

$$M = \begin{pmatrix} i & j & k \\ 0 & 2{,}3 & 0 \\ 160 & 880 & -800 \end{pmatrix} \Rightarrow \langle -1840, 0, -368 \rangle$$

$M_A = r_{G/A} + T_{CG}$

$r_{G/A} = \langle 2{,}7, 2{,}3, 0 \rangle$

$|r_{G/A}| = 3{,}54$

$r_{G/A} = \langle 0{,}76, 0{,}64, 0 \rangle \times 1200$

$r_{G/A} = \langle 912, 768, 0 \rangle$

$$M = \begin{pmatrix} i & j & k \\ 2{,}7 & 2{,}3 & 0 \\ -912 & 768 & -810 \end{pmatrix} = \langle -1242, 1459, 1852 \rangle Nm$$

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3) $R_A = 2F_{AB} + F_{AD}$

$F_{AB} = (-82)_j\ lb$

$F_{AB} = -164_j\ lb$

$F_{AD} = \frac{\langle 6, -10, -3 \rangle}{12,04}\ 82 lb$

$F_{AD} = \langle 40,86, -68,1, -20,43 \rangle$

$$M = \begin{pmatrix} i & j & k \\ 0 & 10 & 3 \\ 40,86 & -68,1 & -20,43 \end{pmatrix} \Rightarrow \langle 0, -122,58, 408,6 \rangle$$

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